

What Is Claimed Is:

1. A radiation-curable, aqueous composition comprising a mixture of:
- (A) about 10.0% to about 60.0% by total weight of the mixture of a member selected from the group consisting of water-reducible oligomers having a weight average molecular weight in the range of about 180 to about 3,000 which contain at least two acrylate groups, and combinations thereof;
- (B) about 10.0% to about 50.0% by total weight of the mixture of a member selected from the group consisting of monomers containing at least one ethylenically unsaturated group and at least one quaternary amine group, and combinations thereof; and wherein said monomer is capable of reacting in a radiation-induced free radical polymerization reaction with said oligomer (A);
- (C) about 1.0% to about 20.0% by total weight of the mixture of a member selected from the group consisting of water-insoluble cationically-modified acrylic latexes having a glass transition temperature in the range of about 40°C to about 110°C, water-insoluble cationically-modified styrenic latexes having a glass transition temperature in the range of about 40°C to about 110°C, and combinations thereof;
- (D) up to about 2.0% by total weight of the mixture of a surfactant; and
- (E) the balance of the mixture being water; to produce a radiation-curable aqueous composition having a solids content in the range of about 35.0% to about 97.0%.

2. The radiation-curable, aqueous composition of claim 1 wherein:
- (A) about 30.0% to about 50.0% by total weight of the mixture of a member selected from the group consisting of water-reducible oligomers having a weight average molecular weight in the range of about 180 to about 3,000 which contain at least two acrylate groups, and combinations thereof;
- (B) about 20.0% to about 42.0% by total weight of the mixture of a member selected from the group consisting of monomers containing at least one ethylenically unsaturated group and at least one quaternary amine group, and combinations thereof; and wherein said monomer is capable of reacting in a radiation-induced free radical polymerization reaction with said oligomer (A);
- (C) about 5.0% to about 12.0% by total weight of the mixture of a member selected from the group consisting of water-insoluble cationically-modified acrylic latexes having a glass transition temperature in the range of about 40°C to about 110°C, water-insoluble cationically-modified styrenic latexes having a glass transition temperature in the range of about 40°C to about 110°C, and combinations thereof;
- (D) up to about 2.0% by total weight of the mixture of a surfactant; and
- (E) the balance of the mixture being water; to produce a radiation-curable aqueous composition having a solids content in the range of about 35.0% to about 97.0%.
3. The radiation-curable aqueous composition of claim 1 wherein the oligomer has a weight average molecular weight in the range of about 300 to about 1,500.
4. The radiation-curable aqueous composition of claim 1 wherein the oligomer is a member selected from the group consisting of acrylates of aromatic polyesters, acrylates of aliphatic polyesters, acrylates of aromatic and aliphatic polyesters, acrylates of aromatic polyurethanes, acrylates of aliphatic polyurethanes, acrylates of aromatic and aliphatic polyurethanes, acrylates of aromatic polyethers, acrylates of aliphatic polyethers, acrylates of aromatic and aliphatic polyethers, acrylates of aromatic polyepoxides, acrylates of aliphatic polyepoxides, acrylates of aromatic and aliphatic polyepoxides, and combinations thereof.

5. The radiation-curable aqueous composition of claim 4 wherein the oligomer is a member selected from the group consisting of alkylepoxy acrylates, aryloxy acrylates, and combinations thereof.

5

6. The radiation-curable aqueous composition of claim 1 wherein the monomer is a member selected from the group consisting of diallyldimethylammonium salts, quaternized alkyl salts of dialkylaminoalkyl acrylates, quaternized vinyl imidazoles, quaternized vinyl morpholines, quaternized alkyl salts of dialkylaminoalkyl acrylamides, quaternized alkyl salts of dialkylaminoallyl methacrylamides, and combinations thereof.

10

7. The radiation-curable aqueous composition of claim 6 wherein the monomer is a member selected from the group consisting of quaternized alkyl salts of dimethylaminoethyl acrylates, quaternized alkyl salts of dimethylaminoethyl methacrylates, and combinations thereof.

8. The radiation-curable aqueous composition of claim 1 wherein the latex has a glass transition temperature in the range of about 50°C to about 90°C.

9. The radiation-curable aqueous composition of claim 1 wherein the latex has a glass transition temperature in the range of about 70°C to about 80°C.

10. The radiation-curable aqueous composition of claim 1 wherein the surfactant is a member selected from the group consisting of nonionic surfactants, cationic surfactants, and combinations thereof.

25

11. The radiation-curable aqueous composition of claim 1 having a solids content in the range of about 40.0% to about 72.0%.

12. The radiation-curable aqueous composition of claim 1 with a suitable photoinitiator for ultraviolet curing contained therein.

13. An ink jet receptive coating comprising the radiation-curable aqueous composition of claim 1.

14. The ink jet receptive coating of claim 13 wherein the coating further comprises a pigment.

15. The ink jet receptive coating of claim 14 wherein the pigment is a member selected from the group consisting of silica, alumina, plastic pigments, calcium carbonate, kaolin clay, and combinations thereof.

16. An ink jet printable product comprising a substrate coated on at least one side with the coating of claim 13 and wherein said coating is radiation-cured.

17. The ink jet printable product of claim 16 where the substrate is a member selected from the group consisting of paper, paperboard, wood, plastic film, metal foil, metallized film, glass, textiles, and combinations thereof.